UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Mr. T. Kawai
Shinko Pantec Co., Ltd.
Technical Research Center
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Kobe 651-22, Japan

Dear Mr. Kawai:

Your request to Mr. Tokiwa in the U.S. Environmental Protection Agency's (USEPA's) San Francisco office was referred to USEPA Headquarters in Washington, DC. This office (the Fibers and Organics Branch) is responsible for managing the national PCB program. I apologize for not being able to respond within the time frame that you requested. I understand you are looking for background information concerning how the 50 parts per million (ppm) cutoff was selected as the concentration for regulating the disposal of polychlorinated biphenyl (PCB) wastes in the United States.

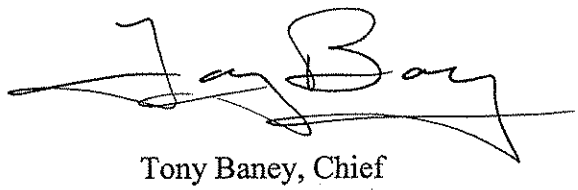
In one of the first PCB regulations published in February 1978 (43 FR 7150), EPA set the cutoff for the disposal of PCB wastes at 500 ppm. Under the Toxic Substances Control Act (TSCA) which regulates PCBs, EPA must balance the economic costs created by the regulation against the benefits that will be obtained by the regulation. In other words, the benefits of the regulation must outweigh its costs. Therefore, the selection of 500 ppm PCB was not based on health effects or environmental contamination. Instead, the 500 ppm cutoff represented a level at which the regulated disposal of most PCBs could be achieved. However, additional information provided to EPA suggested that the regulatory cutoff could be lowered without creating an adverse impact on the disposal of PCB wastes. As a result, EPA published a regulation in May 1979 (44 FR 31514), which lowered the regulatory level to 50 ppm. There were several reasons for selecting the 50 ppm level.

First, EPA determined that industry could comply with the more stringent 50 ppm level. Secondly, lowering the cutoff level would increase protection of health and the environment; that is, a larger amount of PCBs (estimated in 1979 to be an additional one million pounds) could be controlled. However, EPA determined that a more stringent level, such as 1 ppm or 10 ppm,

would have had a significant adverse economic impact on the organic chemical industry. Also, a 10 ppm regulatory level was not appropriate because the U.S. PCB disposal capacity was not able to handle the volume of PCB waste that would have been subject to the disposal requirements at that low concentration. Finally, other U.S. environmental laws could be used to regulate the disposal of low concentration (less than 50 ppm) wastes, such as the Clean Water Act, the Marine Protection, Research and Sanctuaries Act, and the National Pollutant Discharge Elimination System.

After considering all of this information and evaluating the available options, EPA decided that a 50 ppm regulatory level would provide adequate protection for human health and the environment and that an effective PCB waste disposal program could be achieved under TSCA. The relevant discussions of this issue, as it appeared in the **Federal Register** in 1978 and 1979, are enclosed for your information. We hope you find this information useful.

Sincerely,



Tony Baney, Chief
Fibers and Organics Branch

Enclosure

cc: Yosh Tokiwa, Region IX

high and low voltage capacitors. Transformers drained of PCBs, dredge spoils, municipal sewage sludge, and materials contaminated by spills are required to be disposed of either in an incinerator or in a chemical waste landfill. Large high and low voltage capacitors may be placed in a chemical waste landfill until January 1, 1980.

Storage of PCB's and PCB articles prior to disposal is allowed under specified conditions in special facilities that provide a margin of safety against release of PCBs to the environment. Capacitors can be stored next to, but are not required to be inside of, a special storage facility until January 1, 1983. This latter type of storage is allowed in order to reduce storage facility costs and, at the same time, have contained storage facility immediately available should a leak develop.

Small capacitors in home appliances and fluorescent light ballasts may be disposed of as municipal solid waste. However, small capacitors owned by capacitor and equipment manufacturers and acquired in the course of such manufacturing, which are being disposed of, must be incinerated or landfilled just like large capacitors.

All containers of PCB liquids, not-in-service PCB transformers, and not-in-service large high voltage capacitors are required to be labeled by July 1, 1978. All transport vehicles carrying PCBs are required to be labeled beginning October 1, 1978. All in-service transformers, in-service large high voltage capacitors, and new equipment with small PCB capacitors are required to be labeled by January 1, 1979.

All newly manufactured non-PCB large low voltage capacitors, small alternating current capacitors, and fluorescent light ballasts are to be labeled, "No PCBs" beginning July 1, 1978.

PCB incineration, chemical waste landfill, and storage facility specifications are provided. The EPA Regional Administrators must approve all incinerator and chemical waste landfill sites before they can be used for PCB disposal and can waive any particular condition imposed on an incinerator or landfill if they find that waiving that condition will not result in the incinerator or landfill posing any additional risk of injury to health or the environment. They may also waive the incineration method totally in favor of another method that provides PCB destruction of equal efficiency.

In addition, EPA Regional Administrators may waive incineration requirements for PCB articles other than capacitors on the basis of technological infeasibility, and instead allow disposal of such articles in a chemical waste landfill.

EPA Regional Administrators are granted authority to approve types of disposal other than incineration or landfill for dredge spoils and municipal sewage treatment sludges upon a showing that incineration or landfilling is not feasible and that an alternate method will provide adequate protection to health and the environment.

Decontamination procedures, marking formats, and recordkeeping and monitoring procedures are provided in the form of Annexes attached to these regulations.

RULE MODIFICATIONS

An explanation of EPA's modifications to the proposed regulation is set forth below. Only those modifications that resulted in substantive changes to the definitions or requirements are explained.

CHANGES IN § 761.2 DEFINITIONS

Section 761.2(v) of both the proposed rule and the final rule define "PCB mixture" to mean any mixture with 500 parts per million (ppm) of PCB.

The Agency is aware that adverse health and environmental effects can result from exposure to PCB's at levels lower than 500 ppm; however, at this time the Agency is not establishing a level based on health effects or environmental contamination but rather a level at which regulated disposal of most PCB's can be implemented as soon as possible. The 500 ppm PCB concentration was selected in the proposed regulation because it appeared to include those commerical products which are generally called PCB's and those contaminated as the result of the deliberate introduction of PCB's and to exclude other widely used commercial products which may contain lower levels of PCB's as a result of the manufacturing process or exposure to the general environment containing PCB's. The Agency was concerned about inadvertently controlling disposal of mixtures where there was insufficient information about the regulatory impact on commercial products.

In the period between proposal and promulgation, the Agency has obtained more information bearing on the definition of PCB mixture. The impact on commerical products of defining lower levels of contamination as "PCB Mixtures" appears less than first believed. Futhermore, disposal criteria for lower level PCB's such as PCB contaminated dredge spoils, sludges, waste oils, and spill materials appear necessary in order to reduce additional environmental contamination. Since most of this information was not included in the record of the proposed marking and disposal regulations and did not become a significant issue in the informal hearing, the definition of PCB mixture cannot be changed to a lower concentration level until the Agency first proposes the lower concentration definition. As a consequence, the 500 ppm level definition for a PCB mixture, as proposed, is included in this final rulemaking. However, the Agency plans to propose a lower concentration of PCB's, possibly in the range of 50 ppm or below, to define PCB mixture in the forthcoming PCB manufacturing, processing, use and distribution regulations. At the same time, the Agency anticipates that some variations in the disposal requirements will be proposed for PCB's at these lower levels. These proposed regulations will appear shortly in the FEDERAL REGISTER, and informal hearings on all of these proposals will be held simultaneously.

It should be noted that the regulations promulgated today do not preempt more stringent requirements that may be placed in dredging permits and in other regulatory tools employed by EPA in controlling the release of PCB's. In particular, if there is a risk that materials such as dredge spoils or sewage sludge will be deposited in water or where they can be carried into water, stricter controls than specified in these regulations may be appropriate. Water has been the most significant pathway for PCB contamination, and serious environmental damage can be expected to result from the deposit in or near water of material containing PCB's even in low concentrations. This is particularly true for dredge spoils and sewage sludge, given the huge quantities of these materials that may be generated.

EPA Regional Offices making decisions on permits for dredge and fill disposal under section 404 of the Federal Water Pollution Control Act and issuing discharge permits under the FWPCA or dumping permits under the Marine Protection, Research and Sanctuaries Act of 1972 or exercising any other relevant authority, will be expected to take such factors into account and to regulate PCB's at levels below 500 parts per million under that order authority, wherever appropriate.

CHANGES IN § 761.10 DISPOSAL OF PCB'S

A new section 761.10(b)(3) has been added to the final rule to allow the use of chemical waste landfills for disposal of soil and debris contaminated with PCB's as a result of a spill or from placement of PCB's in a disposal site prior to the effective date of these regulations. Under the proposed rules, incineration would have been required. This change was made to permit the use of a more practical disposal method for the large volumes of soil and debris, such as trash, trees, lumber, and other rubbish, that may be involved in a spill clean-up operation or in removal or excavation of materials from an old disposal site,

from the rule. Because some provisions of the rule apply to concentrations of PCBs below 50 ppm (e.g., the ban on the use of PCBs as sealants, coatings, and dust control agents), the applicability section (§ 761.1(b)) explains that wherever the term "PCB" or "PCBs" is used in this rule, it means PCBs at a concentration of 50 ppm or greater unless otherwise specified.

The second principal change is the addition of a new term, "PCB Item", defined as "any PCB as it is a part of, or contained in, any 'PCB Article', 'PCB Article Container', 'PCB Containers' or 'PCB Equipment', at a concentration of 50 ppm or greater" (see § 761.2(x)). This change significantly affects the scope of the manufacturing ban. (See preamble section VI.B.1. below.)

B. Regulation of PCBs at the 50 ppm Concentration Level

To implement this rule in a practical manner, it is essential that EPA adopt a regulatory cut-off point based upon the concentration of PCBs. PCBs are widely dispersed in the environment and are found worldwide at low concentration. This wide dispersion has occurred because hundreds of millions of pounds of PCBs have been used in the past with little or no attempt to control their use or disposal. Because PCBs are now so pervasive, the effect of not having a cut-off concentration would be to extend the prohibitions and other requirements of section 6(e) of TSCA to almost all human activity. Many foods, such as fish and milk, as well as the human body often contain detectable concentrations of PCBs.

The final rule applies to any substance, mixture, or item with 50 ppm or greater PCB. This 50 ppm cut-off was proposed as a change from the Disposal and Marking Rule (43 FR 7150, February 17, 1978), which specified a 500 ppm cut-off. (See definition of "PCB Mixture" in that rule (§ 761.2(w), 43 FR 7157).)

Where to set the cut-off point for the PCB rule has been an issue throughout the development of both the Disposal and Marking Rule and the Ban Rule. The preamble to the proposed Disposal and Marking Rule (see 42 FR 26564, May 24, 1977) first discussed the issue under the heading "PCB Mixtures, Waste Materials, and Sludges". The preamble to the final Disposal and Marking Rule discussed the issue further under the heading "Changes in § 761.2 Definitions" (see 43 FR 7151, February 17, 1978). This discussion stated that EPA was seriously considering lowering the PCB concentration in the definition of "PCB Mixture" from 500 ppm to possibly 50 ppm. The preamble to the proposed Ban Rule emphasized that EPA must select a cut-off point that it can reasonably administer in order to attain the objectives of §6(e) of TSCA (see 43 FR 24804, June 7, 1978).

Before selecting 50 ppm PCB as the cut-off point, EPA considered several other options, including retaining the 500 ppm PCB cut-off originally specified in the Disposal and Marking Rule, and lowering the cut-off concentration to 10 ppm or even 1 ppm. The 500 ppm PCB option was favored by affected industries because it would reduce the costs of complying with the rule, but no evidence was presented that indicated that industry is technologically or economically unable to comply with the more stringent standard. In fact, in this final rule, EPA is easing the economic burden of complying with the more stringent standard by allowing alternative disposal methods for certain wastes containing between 50 ppm and 500 ppm PCB.

Lowering the PCB cut-off point from 500 ppm to 50 ppm will result in substantially increased health and environmental protection. Using data developed by Versar, Inc. of Springfield, Virginia, EPA estimates that approximately one million additional pounds of existing PCBs will be controlled by lowering the cut-off to 50 ppm. In addition, from 100,000 to 500,000 pounds per year (estimated from manufacturing exemption petitions) of new PCBs will be controlled. Because Congress intended that EPA address the problem of contamination of the environment by PCBs to the greatest extent possible, EPA believes that regulating this substantial additional amount of PCBs is justified.

Lowering the cut-off concentration to 10 ppm PCB would provide an additional degree of environmental protection but would have a grossly disproportionate effect on the economic impact and would have a serious technological impact on the organic chemicals industry. Although firm data are not available, investigations have indicated that a number of chlorinated organic chemicals are produced with PCB concentrations of 10 ppm to 30 ppm and that it may be very difficult technically to alter the production processes to produce lower levels of PCBs or eliminate them. In addition, a 10 ppm concentration cut-off would also substantially increase the scope of the disposal requirements, especially for soils, debris, and solvents contaminated with low concentrations of PCBs. Those wastes would be added to the total quantity of waste at these PCB disposal sites. Since PCB disposal site capacity is limited, these additional wastes would add to the volume of wastes stored at PCB storage facilities. Illegal disposal of PCB wastes and inadvertant releases of PCBs into the environment are more likely to occur when disposal capacity is not readily available.

EPA recognizes that increased environmental benefits could result if additional PCBs were destroyed or controlled by regulating PCBs at very low concentrations. These potential benefits would be negated, however, if high-concentration PCB wastes are not properly disposed of because the limited disposal capacity for PCB wastes and EPA's surveillance and enforcement efforts are diverted to low concentration wastes. In addition, other authorities administered by EPA, such as the Clean Water Act (CWA) and the Marine Protection, Research, and Sanctuaries Act, can be used to regulate low concentrations of PCBs. EPA has the ability to control environmental releases of certain low concentration PCBs through the National Pollutant Discharge Elimination System (section 402 of CWA), through dredging permits (§ 404 of CWA) and through toxic effluent standards and prohibitions (section 307(a) of CWA).

The arguments against a cut-off of 10 ppm are pertinent to a cut-off of 1 ppm to an even greater extent. Foods, such as milk and fish, and even the human body itself often contain PCBs at this low concentration. For these reasons, EPA also decided not to adopt a cut-off of 1 ppm.

After reviewing the public comments, informal hearing testimony, and other information in the rulemaking record and then evaluating the available options, EPA concludes that retaining the PCB cut-off limit at 50 ppm provides adequate protection for human health and the environment while defining a program that EPA can effectively implement.

The major exception in the rule to the 50 ppm limit is the prohibition of the use of waste oil as a sealant, coating, or dust control agent if the waste oil contains any detectable concentration of PCB. This prohibition is necessary to prevent the use of PCB-contaminated materials in ways that result in direct and widespread environmental contamination. Road oiling, other dust control, pipe coating, and spraying of vegetation permit substantial direct entry of PCBs into the air and waterways and may introduce PCBs into the food chain.